

REMARKS

Amendment

Claims 1, 7, 14, and 16 have been amended. Support for the amendment of claims 1 and 14 is found throughout the original specification, for example on page 8, lines 1-3; page 4, lines 15-17; page 7, line 4; and page 11, lines 5-7. The dependency of claim 7 has been corrected. Claim 7 is now dependent on claim 1. Claim 16 has been made dependent on claim 15 and recites the connection between the reservoir and the solvent line as described on page 6, lines 8-11.

Restriction Requirement

Applicant acquiesces to the restriction between the claims of Group I, claims 1-10 and 14-19, and Group II, claims 11-13. Applicant affirms the election of the invention of Group I, claims 1-10 and 14-19.

Objection to the Drawings

The drawing were objected to for including reference numbers 76-78 and 176-178 that were not mentioned in the description. Applicant respectfully traverses the objection in view of the amendment to the description.

The description in the paragraph bridging pages 7 and 8 has been amended to mention these reference numbers in accordance with what is shown in FIG. 2 and the understanding of a two-fluid, offset lithographic printing presses by a person of ordinary skill in the art. Applicant respectfully requests that the amendment to the description be entered and the objection be withdrawn.

Claim Objection

Claim 16 was objected to as confusing. Claim 16 has been amended to reflect the disclosure on page 6, lines 8-11.

Rejections Under 35 U.S.C. §112, Second Paragraph

Claim 5 was rejected as indefinite. Applicant respectfully traverses this rejection and requests reconsideration.

Claim 5, dependent on claim 1, includes further steps of

- (c) replacing the paper substrate of step (a) with a second paper substrate having a narrower width;
- (d) increasing the rate of delivery of the tack-reducing solvent.

"The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more." *Miles Laboratories Inc. v. Shandon Inc.*, 27 U.S.P.Q.2d 1123, 1126 (Fed. Cir. 1993). Claim 5 is definite under section 112 because a person skilled in the art can easily understand that the scope of claim 5 extends to processes having a step in which the rate of delivery of the tack-reducing solvent is increased.

The Office Action suggests that claim 5 is indefinite because the Applicant fails to disclose a *purpose* for increasing the rate of delivery. It is unclear whether the Examiner finds the claim indefinite because the Applicant has allegedly failed to disclose this purpose in the claim itself or in the description of the invention. In either

case, however, section 112 “demands no more” than that the claim language makes clear the scope of the claim. Further, “increasing” is used according to its ordinary meaning and Applicant detects no ambiguity in this term, nor has Applicant anywhere indicated that this term is to be given other than its ordinary meaning. If person practices a process which otherwise meets the claim, and that process includes steps of replacing a first paper substrate [“the paper substrate of step (a)”] with a second paper substrate having a narrower width and of increasing the rate of delivery of the tack-reducing solvent, then the process falls within the scope of claim 5, regardless of the person’s motives for increasing the rate of delivery of the solvent.

Accordingly, because the rejection does not set out any reason why a person of ordinary skill in the art could not understand the scope of claim 5, Applicant respectfully requests that the rejection be withdrawn and the claim be reconsidered.

Claim 7 was rejected as being dependent on itself. Claim 7 has been amended to overcome this rejection. Applicant respectfully requests reconsideration of the claim.

Rejection Under 35 U.S.C. §102(b) over Rebel et al.

Claims 1, 8, 9, 14-16, and 19 were rejected as anticipated by the Rebel patent, U.S. Patent 4,480,548. Applicant respectfully traverses the rejection and requests reconsideration.

Independent claim 1 and its dependent claims 8 and 9 recite printing with ink rollers by applying ink to a first ink roller, with the ink being transferred to successive

adjacent ink roller until it is finally printed in an image on a paper substrate. A tack-reducing solvent is delivered to non-print areas of an ink roller and transferred to non-print areas of successive adjacent ink rollers. Independent claim 14 and its dependent claims 15, 16, and 19 recite a printing apparatus with adjacent ink rollers and a solvent delivery system for delivering a tack-reducing solvent to non-print areas of at least one ink roller.

In contrast, the Rebel method does not involve printing, applying ink, or ink rollers at all. Instead, the Rebel patent concerns a method of applying a varnish or lacquer, not ink, using the dampener rollers of a dampening unit, not ink rollers of the ink train, when printing with ink is not carried out. See column 2, lines 40-41 ("FIGS. 1A and 1B show a dampening unit used as a varnishing unit"); *The GATF Encyclopedia of Graphic Communications*, page 804 (Richard M. Romano & Frank J. Romano eds. 1998) ("[V]arnish also refers to an overcoating applied to a printed piece following printing, performed on or off the press.") (emphasis added). Thus, the Rebel patent fails to disclose the limitations of claim 1 and its dependent claims of printing, applying ink to a first ink roller, delivering a tack-reducing solvent to non-print areas of a second ink roller, and the transfer of the solvent to successive adjacent ink rollers. The Rebel patent further fails to disclose the limitations of claim 14 and its dependent claims of a solvent delivery system for delivering tack-reducing solvent to non-print areas of at least one ink roller.

Further, the Rebel method appears to be directed at cleaning the dampening rollers between using the dampener to apply the varnish and its usual use for supplying fountain solution during lithographic printing. Column 2, line 62 to column

3, line 9 ("A control facility 9 so controls the means 2.1 that they dampen the rollers 4-7 before the starting of printing and shortly before stoppage and wash the rollers 4-7 after printing. Dampening the rollers 4-7 before printing dissolves the particles of varnish still present on the rollers 4-7 after washing, so that the layer of varnish disappears after a few sheets have passed through. Dampening the rollers 4-7 by the liquid-supplying means 2.1 shortly before the stoppage ensures that the varnish cannot dry on the rollers 4-7 over their whole length while the press is inoperative. These steps obviate the conventional work of cleaning the cylinders and cleaning of the inking mechanism, since the particles of varnish must not be conveyed beyond the rollers 4-7 and the cylinders."). The Rebel method uses a solvent, but does not disclose that the solvent is a tack-reducing solvent for its varnish. Even more importantly, the Rebel patent nowhere suggests using a solvent for ink in its method, let alone a tack-reducing solvent for ink. See *The GATF Encyclopedia of Graphic Communications*, page 762 (Richard M. Romano & Frank J. Romano eds. 1998) (describing importance of tack as property of an ink, particularly in offset lithographic inks).

Because the Rebel patent fails to disclose every limitation of the present claims, Applicant submits that the claims are not anticipated by the Rebel patent. Applicant respectfully requests withdrawal of the rejection and reconsideration of all claims.

Claims 1, 8, 9, 14-16, and 19 Are Also Not Obvious from the Rebel Patent

As discussed above, the claimed invention is not anticipated by the Rebel patent. When reconsidering the claims, the Applicant requests that the Examiner consider these further points that show the claimed invention is also not obvious from the Rebel patent.

The Rebel patent teaches only a method that takes place when no ink is being printed. Therefore, the Rebel patent does not suggest any method involving printing with an ink.

Moreover, the Rebel patent apparently delivers solvent for making it easier to clean the dampener rollers before they are again needed for delivering fountain solution during printing. The dampening rollers of the Rebel system are used both to deliver fountain solution during printing of the ink and to deliver the varnish during the overcoating process. See, e.g., col. 1, lines 39-47 (“[T]he roller side zones can be kept clear of surplus varnish . . . by being scraped by the doctor blade. Such scraping does not give 100% removal, and so some particles of varnish remain . . . After some time the build-up becomes substantial and remains”); col. 2, lines 65-68 (“Dampening the rollers 4-7 before the starting of printing dissolves the particles of varnish still present on the rollers 4-7 after washing, so that the layer of varnish disappears after a few sheets have passed through.”); col. 3, lines 1-9 (process obviates conventional cleaning). The varnish has to be cleaned off so that the varnish does not contaminate the ink rollers and so that the dampener rollers can again be used to deliver fountain solution. There would be no corresponding need to clean the ink rollers because the ink rollers are used only to deliver ink.

Even if the Rebel patent were to make the present invention *prima facie* obvious, Applicant has provided comparative tests in the specification that illustrate the important and unexpected advantages of the claimed method and printing apparatus. Example 1 of the invention demonstrated a remarkable *ten-fold decrease* in down time while printing at a rate of more than a half-million impressions per 24 hours as compared to printing for the same time at the same rate but without the invention (Comparative Example A) or printing using a conventional means of addressing the problems caused by ink on the end of the rollers (Comparative Example B). Perhaps even more unexpectedly, blanket usage was cut in half and printing plate life was extended. These beneficial properties of the invention could not have been predicted from the Rebel patent's method of cleaning dampening rollers because (1) the Rebel patent doesn't mention the problems and (2) the Rebel patent is concerned only with problems caused by switching between fountain solution and varnish in the dampener unit.

For these reasons, Applicant submits that the claims are patentable over the Rebel patent. Consideration of these points and allowance of all pending claims is respectfully requested.

Rejection Under 35 U.S.C. §103 over Rebel et al. in Combination with the Secondary References of Switall, Huebner, MacPhee, Burke, or De Concini

The remaining claims have been rejected over combinations of the Rebel patent with various secondary references. Applicant respectfully traverses each of these rejections and submits that the secondary references do not meet the

shortcoming of the Rebel patent and do not, therefore, render any of the claims obvious in view of the combinations.

Claims 2, 6, 17, and 18 were rejected as unpatentable over the Rebel patent in view of Switall, U.S. Patent 3,508,711. The Switall patent discloses a fluid dispensing system for spraying cleaning solvent onto blanket cylinders, col. 1, lines 41-43. The Switall method is for cleaning off the blanket cylinder along its whole length. Col. 3, lines 34-43 and FIG. 1.

The Office Action cites the Switall reference for its disclosure of pump (36) for pumping solvent from a reservoir. The Switall reference, however, delivers the solvent to spraying units that spray cleaning solvent along the length of the blanket. The Switall reference does not disclose the method steps and apparatus features absent from the Rebel patent. Thus, claims 1 and 14, and each of their dependent claims including claims 2, 6, 17, and 18, are patentable over the combination of the Rebel and Switall patents.

Claim 3 was rejected as unpatentable over the combination of the Rebel patent and Huebner, U.S. Patent 3,139,028. The Office Action cites the Huebner patent as teaching varying the rate of solvent pumping according to printing rate. First, the Huebner patent concerns an apparatus for misting printing plates, see Title, not for supplying tack-reducing solvent to non-print areas of an ink roller. The mist of the Huebner method is dampening moisture that serves as fountain solution – that is, it wets out nonprint areas of the plate to repel the ink. Col. 1, lines 13-16 & 26-30. The

Huebner mist, therefore, cannot be a tack-reducing solvent for the ink as it must repel the ink. The Huebner reference may vary its mist supply with press speed, but such a process is wholly distinct both in what it is delivering and where it is delivering it compared to the present method.

Further, as a practical matter, the teaching of the Rebel patent and the Huebner patent cannot be combined, as Rebel deals with delivery of solvent for cleaning varnish to dampener rollers while Huebner deals with replacement of the dampener rollers with an alternate system for delivering the dampener fluid.

Even more importantly, the Huebner reference fails to suggest the steps and advantages of the claimed method that are lacking in the Rebel patent teachings. Thus, the method of claim 1 and its dependent claims including claim 3 are patentable over the combination of the Rebel and Huebner patents.

Claim 4 was rejected as unpatentable over the combination of the Rebel patent in view of the Switall patent and MacPhee, U.S. Patent 5,713,282. The shortcomings of the Rebel and Switall patents have been discussed above. The Office Action combined the MacPhee patent for its disclosure of a sensor for detecting dampening fluid. The MacPhee "sensor" is not connected with a reservoir, however, but rather at a nip between roller. Col. 6, lines 30-36. The idea appears to be to avoid flooding the nip, and thus the roller, with too much dampening fluid, not for signalling when to add more fluid to a reservoir as in the present claim 4. This is seen most clearly in Fig. 7, described in col. 10, lines 25-53.

Again, as with Huebner and unlike Applicant's invention, the MacPhee method is concerned with dampener fluid, not a tack-reducing solvent for the ink, and is in no way connected with an ink roller (or, for that matter, with a reservoir). Moreover, it does not seem possible to successfully combine the MacPhee conductivity sensor (which works with the aqueous fountain solution) with the Switall cleaning solvent for washing ink from a blanket (which will not be aqueous). Claim 4 is, therefore, patentable over the combination of the Rebel, Switall and MacPhee patents.

Claim 5 was rejected as unpatentable over the combination of the Rebel patent in view of Burke, U.S. Patent Application 2002/0062754A1.

Claim 5 has two additional steps: replacing the paper substrate with a narrower one, and increasing the rate of delivery of the tack reducing solvent.

The Rebel patent concerns cleaning varnish from the dampener rollers. The varnish is overcoated on printed stock. The varnish has to be cleaned off to make the press ready to print ink again.

The Burke application is directed to the problem of confining cleaning solvent to the area of the blanket that was exposed to ink. Col. 1, paragraph 8 ("In this case, spray bar blanket wash systems will still spray cleaning solution across the entire 57 inch brush and blanket cylinder width. Since many cleaning systems rely on the web to remove the debris during the wash, the narrow 30 inch web will not readily remove debris and used cleaning solution from areas beyond the web width.") See also paragraph 16 (shield blocks part of liquid exit to prevent delivery of liquid). Hence, the Burke application is concerning with reducing the amount of solvent delivered to the

blanket, and confining it to the area that contacts the web, when a narrower web width is used.

Even were the Burke reference prior art for the present invention, and Applicant does not admit that it is, the combination of the Rebel patent and the Burke reference does not suggest Applicant's invention. The method of claim 5 is to *increasing*, not decreasing the rate of solvent delivery when the web of narrower width is substituted. The method of claim 5 is also concerned with delivering the solvent to nonprint areas, not print areas. Finally, the method of claim 5 is also concerned with delivering solvent to an ink roller, not to the blanket.

Claim 5 is, therefore, patentable over the combination of the Rebel patent and the Burke application.

Claim 10 was rejected as unpatentable over the combination of the Rebel patent in view of De Concini et al., U.S. Patent 5,413,041. Applicant respectfully traverses the rejection.

The shortcomings of the Rebel patent have been discussed. The De Concini patent, which the Office Action cites as disclosing high speed flexography used to print calendered or glazed paper, does not disclose what is lacking in the Rebel reference. The De Concini patent does not disclose delivering a tack-reducing solvent, or any solvent, to non-print areas of an ink roller, or delivering such solvent at a pre-determined rate, or delivering such solvent so that the solvent is transferred to successive adjacent ink rollers, or delivering such solvent at a rate sufficient to prevent increase in ink tack in the non-print areas. Nor are such modifications

obvious from the proposed combination of references. Further, Applicant cannot find any reference to super calendered paper.

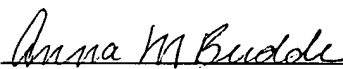
Accordingly, Applicant respectfully requests withdrawal of the rejection and reconsideration of the claim.

Conclusion

Applicant believes that all ground for objection and rejection have been met or overcome, and that the claims are in condition for allowance. Applicant respectfully requests reconsideration of all pending claims in view of the amendments and arguments made. An early allowance of the application is earnestly requested.

The Examiner is invited to telephone if it would be helpful to resolving any issue that might remain.

Respectfully submitted,



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Attachment Showing Description Amendment

The following is a marked up version of the amended paragraph beginning on page 7 in line 20 in which the inserted material is underlined.

In many cases, for example in lithographic printing where the ink trains can be seven yards (6.4 meters) long or more, it can be more effective and more convenient to introduce the tack-reducing solvent at a point in the ink train before the ends of the plate or blanket cylinders. Introducing the tack-reducing solvent at an earlier point in the ink train may be more effective because it prevents increase in the tack of the ink in non-print areas all along the ink train from the point of introduction of the solvent, which prevents formation of tacky ink build-up that can break off and be slung by the high speed of the rollers to another point that could smudge the print or break the web. Introducing the tack-reducing solvent at an earlier point in the ink train may also be more convenient for positioning tack-reducing solvent delivery lines. FIG. 2 shows one preferred delivery of the tack-reducing solvent through the ink train in a two-fluid offset printing process that prints both the top and the bottom of a web. The ink train includes an upper ink fountain 60 and lower ink fountain 160, both containing ink, and an upper dampener 61 and lower dampener 161, both containing fountain solution. Ink fountain rollers 62 and 162 pick up ink from the ink fountain. Various rollers 63 to 75 and 163 to 175 transfer the ink to the plate cylinders 80 and 180, respectively. Rollers 76-78 and 176-178 transfer the fountain solution to plate cylinders 80 and 180, respectively. The rollers 63 to 75 and 163 to 175 include both vibrator rollers and distributor rollers in a configuration representative of commercial presses of this kind. The ink is finally delivered to the plate cylinders 80 and 180. Printing plates, not

shown are clamped around the plate cylinders and provide an inked image that is transferred to the blanket cylinders 82 and 182. The blanket cylinders 82 and 182 are in rolling contact with opposite sides of the web, not shown, and the ink images are offset or transferred to the web. (In a press that prints only one side of the paper, the blanket cylinder is in rolling contact, through the web, with an impression cylinder on the other side of the web.)

Attachment Showing Claim Amendments

The following is a marked up version of the amended claims in which the inserted material is underlined and the deleted material is bracketed.

1. (amended) A method, comprising steps of:
 - (a) printing with a printing unit having adjacent, rotating ink rollers, said ink rollers having a central print area and terminal non-print areas, by applying ink to a first ink roller, the ink being transferred to the print areas and non-print areas of successive adjacent ink rollers and finally printed in an image on a paper substrate;
 - (b) delivering a tack-reducing solvent at a pre-determined rate to the non-print areas of a second ink roller, wherein the tack-reducing solvent is transferred from the non-print areas of the second ink roller to the non-print areas of successive adjacent ink rollers, and further wherein the rate is sufficient to prevent increase in ink tack in the non-print areas.

7. (amended) A method according to claim [7] 1, comprising further steps of:
 - (c) replacing the paper substrate of step (a) with a second paper substrate having a narrower width;
 - (d) closing the aperture in the solvent line and opening a second aperture in the solvent line for solvent to pass onto the non-print areas closer to the edges of the second paper substrate.

14. (amended) A printing apparatus, comprising:

at least one printing unit having adjacent ink rollers, said ink rollers having terminal non-print areas, and
a solvent delivery system for delivering a tack-reducing solvent to the non-print areas of at least one ink roller at a rate is sufficient to prevent increase in ink tack during printing in the non-print areas of said at least one ink roller and successive adjacent ink rollers.

16. (amended) A printing apparatus according to claim [14] 15, wherein the solvent delivery system further comprises a reservoir for containing the solvent, from which reservoir the solvent line receives the solvent.